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ABSTRACT

The use of visuals in facilitating language learning is investigated by first looking at the effects of both visual and auditory perceptions on the ontogeny of language. This paper then samples the growing body of research and data on the ways in which visuals facilitate first language learning. The use of visuals in teaching/learning is examined in terms of concept formation, comprehension, reading and listening, and applications and implications of this research in second language research and in second language classrooms are considered. A discussion of visuals and communicative competence is also provided, as well as demonstrations with discussion in the use of single slides or pictures, sequences of slides or pictures, teaching/modeling oral communicative competence, slides with subtitles, design of visuals, and other points for discussion. (CHC)

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Visual Perception in Language Learning: A Developmental Perspective with Implications for Second Language Learning and Research

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Language or linguistic ability develops out of the acquisition of and the need to communicate meaning. The field of psycholinguisitics generally concerns itself with the acquisition of language. In studying the ontogeny of language psycholinguists have traditionally investigated the effect of the auditory mode to the exclusion of the visual. There are, however, researchers who are expanding the domain of psycholinguistics to include the semantic, pragmatic, paralinguistic, and nonlinguistic features of communication. (French, 1976) This type of research involves the integration of both auditory and visual perceptions in the development of meaning and language.

This presentation investigates the use of visuals in facilitating language learning. It has three sections. The first section looks at the effects of both visual and auditory perceptions on the ontogeny of language. The second section samples the growing body of research and data on the ways in which visuals facilitate first language learning. The third section discusses applications and implications of this research in second language research and in the second language classroom. In any study of visuals a distinction should be made between internally generated images (imagery or induced imagery), and externally generated images (pictures or imposed imagery). This study concentrates on externally generated or imposed images and uses the terms "pictures", "pictorials" or "visuals" synonomously.

1. Ontogeny of Language.

Current studies in the neurobiological foundations of language hold that the development of various language and perceptual skills must be preceded by maturation of the relevant areas of the brain.

For example, data on the ontogeny of speech indicate that the ability to vocalize is a function of muscular control over the organs of articulation which results from maturation of those areas of the brain which regulate these organs (Stark, 1978; Walsh and Diller, 1979) together with the ability to distinguish meaningful and non-meaningful sounds even before speech is possible. It has been suggested that this ability to integrate sound and meaning may be central to language learning (Dore, Franklin, Miller and Ramer, 1976). We believe that this interpretation is too restricted. Humans construct meaning from their perceptions and experience of their environment. These perceptions are visual and sensory as well as auditory. We would prefer to state that the integration of auditory and visual perceptions is central to the development of meaning which, in turn, is a prerequisite to the development of language. There appears to be a convergence of auditory discrimination, visual selectivity, and physical mobility or related activity at about the same time for the child. There are studies which demonstrate this thesis. For example, Reich cites this experience with his son. Initially, the child associated the auditory cue, "shoe", with the visual stimulus, the shoes on the shoe rack in his mother's closet but <u>not</u> those in his father's closet. Gradually over a period of time, he extended the cue to include shoes placed in his path, those in his father's closet, and finally shoes being worn. This began at about 8 months, well before the child began to verbalize. He would crawl to the closet and point to the rack. It would have been interesting to note at what point he would have attached the label to a pictorial stimulus as well.

Young children appear to conceptualize differently than do adults and their processes are not fully understood. (Howe, 1978; Rodgon, 1978; Duncan and Kellas, 1978). When they are constructing their meanings for language, the initial stages seem to be identification of the lexical item with the object or action (Clark and Sengul, 1978; Carter, 1975; Greenfield, 1978; Rodgon, etal 1977; Trevarthan, 1978). It is when they dissociate the lexicon from the object or action that adult-like language begins. This is considered the stage when "serious" language learning begins (Walsh and Diller, 1979) and occurs at about the age of two. Throughout this time, the auditory, visual and sensory modes of perception are being integrated in the development of meaning.

2. Use of Visuals in Teaching/Learning.

This section considers the role of visuals in enhancing comprehension and learning of older children and adults in formal classroom situations. The facilitative and deletrious effects of visuals have been widely investigated in areas such as vocabulary learning and concept formation and oral and written prose comprehension. These studies have been conducted looking at variables such as age, culture, socioeconomic status, content and task. In the following discussion we will focus on the use of visuals in concept formation, written prose comprehension (reading), and oral prose comprehension (listening).

2.1 Use of Visuals in Concept Formation.

Very often vocabulary learning involves acquiring the concepts which the lexical item represents. Numerous studies have been conducted on the use of visuals for vocabulary learning and their results have generally indicated facilitative effects. (See the

works of Levin and his colleagues cited in the Bibliography). In another type of study visuals were used to help teach 3rd and 4th graders mathematical concepts (Tennyson, 1978). He found the picture condition enhanced his subjects' concept learning and rule learning. This use of visuals in content area learning seems to be a particularly fruitful area for further research.

2.2 Use of Visuals in Prose Comprehension.

This field of study has produced a variety of conflicting claims during its long history. Much discussion has centered on the merit of visuals used as textual accompaniments. We suggest that the problem has been in either the design of the visual, its expected role, the task being assessed, or the testing instrument. The visual should not be an alternative to the verbal text. It should function, rather, as an alternative source of information (Denburg, 1976-77). In this way it is an integral source of or element in textual redundancy. Redundancy is crucial in reducing ambiguity and enhancing comprehension. A well-executed visual, then, will enhance comprehension but will not deter the learner or recipient of the message from paying attention to the verbal text itself. The following sections will look at the effects of visuals on written prose (reading) and oral prose (listening) comprehension.

2.2.1 Use of Visuals in Reading.

In studies where the content, design, and test questions have been carefully controlled, the use of visuals has generally produced facilitative or positive results. (See, for example, Denburg, 1976-77). Haring and Fry (1979) analyzed a text for propositional content. They then designed two sets of visuals: one set was totally redundant with the upper level (or main idea) content of

their test discourse; and one set was redundant with both upper and lower levels (main ideas and details). For their sixth grade subjects pictures enhanced recall of top level information, and the pictorial effects were both immediate and delayed. Comprehension was measured by recall of propositional content.

2.2.2 Use of Visuals in Listening.

In these studies the measure of comprehension is usually free or probed recall of meaning, or verbatim recall of surface structure forms. It is our feeling that recall of meaning or propositional content is, generally, a more valid measure of comprehension. Thus, most of the studies cited deal with the use of visuals in oral prose comprehension as measured by recall. Rohwer and Matz (1975) tested black and white children with oral text accompanied by either pictures or printed text and found that the picture condition significantly improved aural comprehension. Guttmann, etal (1977) investigating the degree of pictorial support needed, found that their subjects benefitted from partial pictures in recalling oral prose. Bates, etal (1978) used videotaped recordings of soap operas to test comprehension of anaphora. They found that the addition of the visual mode significantly enhanced comprehension among their college adult subjects. They also incidently found surprising verbatim recall of surface structure forms, a finding which has implications for L2 learning to be discussed below.

3. Visuals in Second Language Research and Teaching.

Proficiency or facility in a second language (L2) also results from the need to communicate meaningfully, and develops through comprehension and the acquisition of meaning. L2 learning, however, differs from L1 acquisition in that the L2 learner already has a

storehouse of background knowledge and experience combined with proficiency in his/her L1 which ensure successful communication. L2 teaching should build upon this already acquired foundation and use it as the basis for successful L2 communication.

The functions of L2 teaching are two-fold: a) to teach new concepts or expand those already acquired using the target language (L2) as the medium of communication; and b) to teach or provide the language necessary to enable the learner to encode and communicate these concepts. In language teaching it is convenient to define requisite linguistic abilities in terms of receptive and productive skills. Receptive skills include listening and reading and have as their ultimate goal the accession of meaning. We suggest that they have the same psycholinguistic thinking base. Productive skills include speaking and writing and their goal is the communication of meaning. They also share a similar psycholinguistic base. As demonstrated above, visuals are highly appropriate for teaching such receptive skills as reading and listening as well as concept formation in the L1. This is also true for L2 learning/teaching. Additionally, the visual mode is uniquely suited for enhancing acquisition of productive skills. Which skill being taught has implications in the design and use of the visuals. Here, we will make a distinction between natural and naturalistic situations in materials design. Any "slice of life" taken out of context becomes contrived. Thus, it is theoretically impossible to have a completely natural situation in designed instructional materials. What can be supplied, however, is a naturalistic situation. In other words, the context or situation should be carefully designed for optimum learning/teaching to take place, and this will not

detract from the goal of natural, holistic or spontaneous discourse or contexts. Visualization can provide this type of situation. The section following will focus on the integration of visual modes in teaching productive skills or communicative competence; that is, in providing the language necessary to enable the learner to communicate successfully in the target language (L2).

3.1 Visuals and Communicative Competence.

Communicative competence traditionally refers to a speaker's ability to use the form of language appropriate to the given context or situation. At this oral level the notion has been extended to include such features of the speech act as intonation, stress, register, gestures, and facial expressions as well as correct syntax and lexicon. In our research we have further expanded the traditional definition of communicative competence to include written as well as oral linguistic production or communication. Our studies indicate that modes of presentation which integrate the visual medium are particularly effective in teaching/learning communicative competence. There has been, to our knowledge, very little controlled investigation in this area. Our work, therefare is highly experimental in nature, and we believe that the results ore very promising for future research and classroom applications.

3.2 Demonstrations and Discussion.

The first task we will investigate is the use of visuals in teaching L2 vocabulary or linguistic forms to express concepts already acquired or to expand that class of concepts. Our long-range objective is to involve the learners in their own learning experiences. By engaging their active participation, their self-conscious use of language will be suspended and the need for communication will be foremost. In this way the visuals function as attitude vitalizers. One format we use is the "cloze" picture. The term is an extension of that used in reading verbal text. In designing the visual some obvious element is omitted. It is essential that this omission be infereable from the context and depending on the cultural and educational backgrounds of the learner.

3.2.1 Single Slides or Pictures.

(Show #1 here as an exercise to audience to demonstrate how it works. Note their reactions--active participation, especially.)

Discussion:

Objectives:

To get students talking in a natural but controlled situation.

To obtain spontaneous speech samples for recording and subsequent analysis to determine global communication errors.

Audience:

Any level of proficiency--beginners to advanced.

Advantages:

Causes students to do a considerable amount of logical reasoning, testing hypotheses and rejecting those which do not "fit" the context supplied.

Provides a situation for natural dialog in the classroom allowing analysis of speech and teaching of appropriate para- and non-linguistic features.

Provides a situaton for writing a paragraph or short essay based on classroom discussion. This allows teacher to determine type of errors transferred from speech to writing. It also give students source material for written tasks, thereby allowing indvidual cultural biases a legitimate expression.

Results:

The oral classroom discussion was taped and students profited from the playback. They could self-correct or peer-correct many grammatical errors. Unknown lexical items were supplied by teacher and their uses and semantic domains were discussed in a naturaliistic situation.

3.2.2 Sequences of Slides or Pictures.

Objectives:

Aids students in learning to organize information sequentially according to accepted rhetorical style.

They learn to make appropriate transitions between thoughts or written paragraphs.

They learn to develop coherence and unity in longer stretches of discourse.

Audience:

Intermediate or advanced learners--some degree of proficiency is required.

Advantages:

It is important to note that these situations are controlled by the context supplied. This allows the teacher to retain control

over the linguistic forms and functions taught/used.

Results:

Note inclusion of a cloze picture in the sequence. This alowed students to digress and inject some of their own individuality into the discussion/assignment. It also provided an additional context for logical reasoning and thinking.

Possible Variations:

Photographs, magazine pictures, or any other type of flat picture can be substituted for slides.

3.2.3 Teaching/Modeling Oral Communicative Competence.

Objectives:

To teach oral communicative competence including para- and non-linguistic features of the speech event.

Audience:

All levels--beginners through advanced.

Materials:

A) Movies, videotapes: ideal for any level; especially useful in provding most complete modeling of <u>all</u> features of the communicative event.

B) Slide/tape: allow for more inferencing of para- and non-linguistic features; seem especially good for intermediate and advanced learners.

C) Flat pictures: most appropriate for advanced learners since they require the greatest amount of inferencing of <u>all</u> features of the speech act.

Note that the uses suggested above for the different types of visuals are under ideal conditions. In actual classroom use availability of both hardware and software may dictate other uses.

Possible Variations:

Play through once with both sound and visual media on. Turn off sound and run through visuals only. Have students role-play in the situations provided. If a segment is shown, students can improvise preceding and following segments.

Play sound only. Students can perform the actions. This gives practice in the non-linguistic features of a speech act. It also provides reinforcement of surface forms through repetition within a meaningful context.

3.2.4 Slides with Subtitles.

This demonstrates a somewhat different approach. It can be accompanied by a sound which emphasizes the grammatical structures being modeled. This provides an alternative mode of presentation of information which provides crucial redundancy of task in a naturalistic context. In other words, students are exposed to a flow of language with emphasis on certain grammatical forms.

3.2.5 Other Points for Discussion.

Teacher should

a) have objective clearly defined before choosing or designing the content of the visual and other modes of presentation to be integrated with the visual mode;

b) be aware of cultural or ethnic backgrounds of the students and their levels of proficiency in order to determine what conceptual constants are common or universal across cultures represented;

c) be aware of the distinction between natural, naturalistic and contrived situations.

3.2.6 Design of Visual.

The following points should be considered in designing visuals for L2 or cross-cultural teaching/learning:

cultural background of students

educational background or level of students

linguistic needs of the students

best way to present the specified objectives to the group of students in question considering these points.

Since most classroom situations include students from a variety of cultural backgrounds, the materials designer or teacher should consider what elements are constant or universal across various groups for a given concept or teaching task.

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